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ABSTRACT

Valid indicators for a school district's Chapter 1 program that would help districts make decisions and shape policy are defined and explored. The March 1988 report of the School District of Philadelphia's Chapter 1 task force proposed a 2-year phase-in of a totally restructured Chapter 1 program for the Philadelphia schools. The definition of indicators of the National Center for Educational Statistics was used to select the following indicators: (1) pupil stability indicator; (2) age-grade appropriate indicator; (3) exit/return rate indicator; (4) percentage of success indicator, which examines norm referenced impact grade by grade; and (5) standardized curriculum support indicator, an analysis of scores from curriculum-referenced items on the city-wide tests. These indicators were developed to inform both school-based and district-wide discussion and decision making. Standardized curriculum support, percentage of success, and exit/return indicators have clear messages about student outcomes, while the other indicators describe the area in which learning takes place rather than the actual outcomes. It is not yet clear if pupil stability and age-grade appropriate indicators have predictive value. Indicators can be beneficial to a school system if data are focused on program improvement and the risks associated with undesirable numeric values are minimized. Seven tables present study data, and five bar graphs illustrate the indicators. (SLD)

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Indicator Based Evaluation for Chapter 1

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INTRODUCTION

There has been a growing interest among educational policy makers, administrators and planners in the development of indicators and an increasing awareness of their potential use. Traditionally, planning and evaluation of educational systems have relied heavily upon collecting massive amounts of data on specific aspects of the educational system. Periodic reporting on selected elements of these data have rarely provided clarity regarding the system's well being. In order to overcome this deficiency, the concept of educational indicators has been defined as a concise set of measures or barometers by which accountable officials and other interested parties may be kept regularly informed on the progress and conditions of the educational system.

Given the climate for educational reform which has occurred within many states and local districts, there is a need for communicating information about educational systems in meaningful and succinct ways. This can be facilitated by identifying general characteristics which capture the essence of what schools and districts are about. The selection, development and refinement of key indicators may enable those concerned with educational systems to monitor the state of the system, and to determine whether policies, plans and resource allocations are really having the intended impact. Furthermore, the activities of the Council of Chief State School Officers in support of the development of a system of indicators and the federal government's Department of Education's work in this area, strongly suggests that we are about to enter an era where the use of indicators will become increasingly common. Under these conditions it is possible that educators using indicators will have the capability of monitoring their systems and guiding its development toward improving the quality of schooling.

The purpose of the current paper is to define and explore valid indicators for a school district's Chapter 1 program that would provide greater help to school districts and may generate information which is decision-oriented and more immediately useful to those who shape policy.

SELECTION OF CHAPTER 1 AS A FOCAL POINT

Like other large urban areas, Philadelphia's Chapter 1 program represents a substantial resource; approximately $58 million dollars is provided annually for supplementary basic skills services to more than 65,000 pupils in 160 schools. As in other cities, Chapter 1 appears to have had some positive effect on achievement -- but not nearly enough given the urgency of the problems and the amount of resources which have been expended. Locally, the realization had occurred that unless Chapter 1 helped nearly 4 of every 10 students succeed in the regular school program, improvement in the district as a whole would be severely limited.

In December 1987, the School District of Philadelphia's Chapter 1 Task Force was appointed and charged with developing a comprehensive compensatory program which would improve substantially the basic skills of Philadelphia students. The March 1, 1988 Task Force report proposed a two-year phase-in of a total restructured Chapter 1 Program. "This restructuring should occur within an integrated framework of support programs for students at risk, and

the primary goal of all of these support programs should be to foster student success in the regular educational program. The principles underlying the restructuring included alignment with the regular educational program..." (Task Force Report, 1988). Furthermore, among the key recommendations made was that "systemwide data be consistently collected on a few key indicators of progress ... and that this data be readily available and easily understood ..." Clearly, within this context, indicators were to serve as guides to educational improvement. As David (1987) points out, this approach is derived from the belief that "significant change is more likely to result from a system designed to foster professional responsibility for improvement than one which relies on external control." This paper focuses on the initial selection of indicators for a Chapter 1 program.

FACTORS INFLUENCING INITIAL SELECTION/DEVELOPMENT OF CHAPTER 1 INDICATORS

For the purpose of guiding the initial selection and future development, the definition of indicators provided by the National Center for Educational Statistics (1985) as well as the substantive and technical criteria suggested by Oakes (1986) were taken into consideration so that they would reveal "essential information about the system's functioning, suggest whether good progress is being made and warn of potential problems" (Oakes, page 1). Therefore, for the current study, indicators were selected for the Chapter 1 program which :

. consist of statistically valid information related to significant aspects of the Chapter 1 program and/or its interaction with the general fund program.

. provide a benchmark for measuring progress over time.

. are meant, where appropriate, to be representative of policy issues or aspects of education that might be altered by policy decisions.

. can be easily understood by a broad array of citizens concerned with education.

. are relatively reliable and not subject to significant modification as the result of response errors or changes in the personnel generating it" (National Center for Education Statistics, 1985).

Like most large districts, Philadelphia collects a great deal of operational data; unfortunately, these data are not consistently used to inform program improvement at the school or district level. If these data were more closely tied to the schooling process, perhaps their utility for informing programmatic improvement and policy modifications might be enhanced. Given the fundamental goal of Chapter 1 to insure that the student is able to succeed in the regular school program, the indicators listed below were developed to inform school-based and district-wide discussion concerning the program.

1. Pupil Stability Indicator
2. Age, Grade Appropriate Indicator
3. Exit/Return Rate Indicators
4. Percentage of Success Indicator
5. Standardized Curriculum Support (CRT achievement gap) Indicator.

DESCRIPTION OF SELECTED INDICATORS, INITIAL DEVELOPMENT AND CURRENT STATUS

The sources of information for the indicators came from the Pupil Directory Information File, the Citywide Testing File and the Chapter 1 Evaluation and Reporting System File. The Pupil Directory Information File (PDIF) contains pupil names, identification numbers and school location data of pupils. It keeps track of pupils as they move from school to school. The Citywide Testing Files (CWTF) contain the achievement test scores from the 1987 and 1988 testing cycles. The scores provide both norm referenced and criterion referenced/curriculum referenced data related to performance on the School District's Standardized Curriculum. The Chapter 1 Evaluation and Reporting System file (CHIERS), is an annually updated system for gathering and reporting pupil information regarding the ECIA Chapter 1 program. The data elements included in CHIERS are: school location, achievement test scores, and Chapter 1 services received. With respect to the latter, each spring, Data Confirmation Lists are distributed to project staff, who indicate which students are being served in their Chapter 1 projects. Similar data is collected for high school participants who are rostered into various projects from the central roster file. Since Chapter 1 is concentrated in the elementary schools, most of the subsequent analyses focused on grades 1 to 6.

1. PUPIL STABILITY INDICATOR (PSI)

Mobility of the student population has often been cited as a reason for poor performance. It had long been the belief that the Chapter 1 population was highly mobile and was attending several schools during the school year. Furthermore, it had been suggested that pupils who were present in a single building during the year would be better able to derive benefits from the services provided. The mobility issue was examined by determining whether students were in the same or different schools at the three different times during the school year that school location information was collected (fall, winter and spring) through the Pupil Directory Information File.

The Pupil Stability Indicator was defined as the proportion of pupils who did not change schools during a given school year. It presents a picture of the proportion of pupils who started and remained at the school for the entire year.

The data in Table 1 strongly suggests that the students in schools who receive Chapter 1 services were nearly as stable as those in the larger school district. These figures indicate that, because they do not move from school to school, children served by Chapter 1 are potentially likely to receive consistent services across the school year.

Table 1

Pupil Stability Indicator for Two Consecutive Years
Percentage of Pupils in Number of School

School Locations	1986 - 1987 District	1986 - 1987 Chapter 1	1987 - 1988 District	1987 - 1988 Chapter 1
1	95.5	92.5	94.5	92.1
2-3	4.5	7.5	5.5	7.9

DATA SOURCE: Chapter 1 Evaluation and Reporting System updates for 1987 and 1988; Report No. 8831 and 8903.

The initial analyses led to the realization that we were really concerned about two variables rather than one! Being on a school's roll for the year and being present to receive instruction may be two very different events! If used alone, the PSI seems incomplete and has limited value. Its potential may be enhanced if it is used in combination with the average daily attendance (ADA). Since high levels of PSI and ADA are considered to be desirable enabling events for learning, forming a composite indicator would seem to be an appropriate next step. Its potential as a leading indicator for predicting academic achievement will be explored in future studies.

2. AGE - GRADE APPROPRIATE INDICATOR (AGA)

Since the basic purpose of Chapter 1 should insure that the student is able to succeed in the regular school program, key indicators of success would be a reduced retention rate and an increase in acceptable report card marks. Therefore, students would be expected to be promoted annually and graduated "on time." Rather than looking at promotion rates, retention rates and graduation rates -- would it be possible to have a single indicator which would take all of these factors into consideration simultaneously?

Developed by Drs. William B. Yancey and Ira Goldstein of Temple University's Institute for Public Policy Study, the AGA indicator is a measure of the degree to which one's chronological age is consistent with the expected age associated with grade level placement. Since there is always an expected difference of 5 between the chronological age and grade level placement, a value of zero indicates appropriate age - grade congruence; positive values indicate years behind (i.e., older than expected) and negative values demonstrate years ahead (i.e., younger than expected). Table 2 contains some computational examples.

Table 2
Computational Examples of the AGA Indicator

Chronological Age of Child	Assigned Grade Level	Computation	Interpretation
7 years old	Grade 2	7 - (2+5) = 0	Age appropriate
6 years old	Grade 2	6 - (2+5) = -1	1 year ahead (younger than expected)
8 years old	Grade 2	8 - (2+5) = +1	1 year behind (older than expected)

NOTE: Age-Grade appropriate = (chronological age - (Grade + 5))

The age-grade appropriate analysis for the current paper was produced as part of a collaborative study with Temple University's Center for Public Policy. Selecting 15 June 1987 (the middle of the calendar year) as the reference date, age was calculated for all active pupils on the 1987-1988 PDIF. Next, a variable consisting of the student's grade placement plus 5 was created. Subtracting this quantity from the chronological age created an array of numbers which under ideal circumstances should have been at or near zero (Goldstein, personal correspondence, 1988). From this array, groups that were within one year, at least one year ahead and at least one year behind appropriate age-grade placement were identified. By using one year in either direction, the analyses compensated for students whose birthdates caused a late or early school start time.

Students who were more than 1.1 years behind appropriate age-grade placement were then analyzed by comparing the percentages within Chapter 1 and non-Chapter 1 schools among those who were (or had been) served or not served. Generally, "children not Chapter 1 served were more likely to be in the appropriate grade; this is especially true for those not served children in non-chapter 1 schools. . . .Chapter 1 served children in Chapter 1 schools are most likely to be behind in grade" (Yancey, personal correspondence, 1989). Likewise, former Chapter 1 served students now attending non-chapter 1 schools were also most likely to be behind in grade. The results of this analysis may be found in Table 2a.

TABLE 2A: Percent of 1987-1988 Active Students
More Than 1.1 Years Behind*

Grade Level	Schools			
	Chapter 1		Non-Chapter 1	
	Served	Not Served	Served**	Not Served
	(N=55746)	(N=35340)	(N=8667)	(N=74062)
1	18.0	3.1	20.6	3.4
2	15.8	8.1	17.3	6.0
3	18.2	15.6	19.6	8.0
4	22.3	16.8	21.8	10.1
5	22.6	14.8	17.7	8.9
6	21.9	15.7	18.7	11.6
7	28.9	27.4	16.4	13.1
8	34.5	29.8	17.5	14.4
9	49.1	42.1	35.9	27.5
10	46.3	39.6	25.7	22.0
11	31.4	32.9	14.0	13.8
12	23.3	24.3	24.7	10.0

*Yancy and Goldstein, 1988-1989--Personal correspondence.
**Those who received Chapter 1 service and then transferred to a non-Chapter 1 school.

Since age-grade placement is obviously related to promotion/retention and graduation, this indicator offers a quick overview of students as they move through the regular school program. It would seem to have value as a coinsident indicator, that is, an indicator that moves step-in-step with other system characteristics. It will most likely not replace local interest in promotion, retention and graduation rates.

3. EXIT RATE AND RETURN RATE INDICATORS

The proposed regulations for P.L. 100-207 (Chapter 1), requires school districts to conduct a complete assessment of the educational needs of children "who remain in the project for two consecutive years of participation and have not shown sustained progress toward meeting the desired outcomes..; or, show no improvement or a decline in achievement "... Under these conditions districts will be required to know which participants exit the program and if they remain out of the program in subsequent years.

The exit rate indicator (ERI) is the percentage of Chapter 1 participants whose posttest national percentile ranks (NPR) exceed the NPR established as the cut off point on the eligibility test. In Philadelphia, for grades K-5, the posttest score must exceed the 49th NPR; for grade 6-11, scores must exceed the 25th NPR.

$$ERI = \frac{\text{Participants with Post NPR} > \text{Eligibility Criteria}}{\text{Total Participants}}$$

The Return Rate Indicator (RRI) is the percentage of former Chapter 1 participants who become eligible for service during the subsequent testing cycle following their exit from the program.

$$RRI = \frac{\text{Number who become eligible for reentery}}{\text{Total Participants}}$$

The spring 1987 Citywide Test file (CWT) was used to identify Chapter 1 eligible pupils in kindergarten through grade 5 whose reading and/or mathematics scores were either above or below the 49th national percentile rank (NPR). Those whose score or scores exceeded the 49th NPR were defined as having "exited" from a particular Chapter 1 programmatic service. Those at or below this criterion were defined as remaining eligible for service. The Chapter 1 service information was obtained from the 1986-87 CHIERS and was also categorized as reading only, mathematics only or both services. Pupil data for those receiving both reading and mathematics services were merged with the data from the individual service. ESOL pupils, a few mainstreamed special education pupils and pupils who were "served by exception" (i.e. above the eligibility criterion) were excluded from the analyses. The remaining pupils were then matched against the Fall 1987 CWT file (the eligibility test) to determine if they remained above the 49th NPR or if they were eligible to return to the Chapter 1 program.

The results of this analysis are shown in Table 3. For each service category, the number of pupils who remained in, exited from or become eligible for reentry to the Chapter 1 program are detailed. The totals across the services were then used to compute Exit and Return rate indicators.

TABLE 3

Exit and Return Rate Indicators For Basic Skills
Spring to Fall 1987

Service Categories	Chapter 1 Programmatic Outcomes					
	Remained		Exited		Eligible for Reentry	
	N	%	N	%	N	%
Reading (N=28,784)	22,451	78.0%	6,333	22.0%	3,317	11.5%
Mathematics (N=9,513)	5,379	56.5%	4,134	43.5%	1,843	19.4%
Total (N=38,297)	27,830	72.7%	10,467	27.3%	5,160	13.4%

The majority of the participants in each service category and in Chapter 1 as a whole remained in the program. Of those who exited in the Spring of 1987, approximately half became eligible for service during the fall 1987 testing cycle following their exit. These data will serve as baseline information for tracking pupil progress and programmatic impact under the school improvement requirements specified in P.L. 100-207.

4. PERCENT OF SUCCESS INDICATOR (%S)

When Chapter 1 evaluation systems were first proposed by the federal government, an evaluation model was prescribed as well. This model assumes that, in the absence of an educational intervention beyond the regular school program, children will maintain their Normal Curve Equivalent scores (NCE's are normalized National Percentile Ranks) from year to year. Thus, the evidence of a Chapter 1 effect above and beyond the effect of the regular school program is, by definition, a pretest to posttest improvement in the NCEs. This could be described in two ways: The improvement in the NCE associated with the mean score of the group served (classic Model A); and the percentage of students who improve their NCE's from pretest to posttest. While either method will permit norm referenced comparisons, the former (classic Model A) focuses exclusively on the national sample used to norm the achievement test while the latter (Percent of Success) examines norm referenced impact grade by grade for each project in relation to the local school district's Chapter 1 group as a whole. The Percent of Success Indicator is the percentage of participating students whose posttest NCE exceeds their pretest NCEs.

The information for the computation of the Percent of Success Indicator was obtained from the LEA's Chapter 1 Evaluation and Reporting System (CHIERS). Grade 1- 6 baseline achievement information for reading projects and mathematics project may be found in Tables 4 and 5. The information consists of the typical grade range served by each project, the number of students with both pretest and posttest scores, and the NCE's associated with the mean pretest scores.

Tables 4 and 5 also display the Percent of Success Indicator for each reading and mathematics project serving children in grades 1-6. By comparing projects within grade to the average of all similar grade level reading and mathematics services, it is possible to determine which results differ noticeably from the average for that grade. For reading, Satellite Centers A, B and D, and Benchmark show a higher percent of success than the average of all Chapter 1 reading projects. Similarly, in mathematics, EMRT, Option 4 and Benchmark were consistently superior to the other Chapter 1 projects that operated at the same grade level. Graphic presentations of these data may be found in the charts in the Appendix.

The Percent of Success Indicator seems to retain most of the advantages of the NCE Model A norm referenced comparison. In a sense, it is a simplified variation which is readily understood by parents, teachers and administrators. Furthermore, in some districts where the NCE (or NPR) of the average may consistently decrease from grade to grade each year, a within grade analysis may provide a more appropriate type of comparison. Identification of projects which are successful across grades may also be possible. Its utility for identifying successful practices called for in the school improvement sections of the new law will require further investigation.

TABLE 4: A Comparison of Reading Projects' Achievement in Grades 1 - 6 using the Percent of Success Indicator

Project	Number	Mean Pretest NCE	Grade Percentage Improving NCE Scores 1	2	3	4	5	6
DISTRICT READING AIDES SERVICES	23854	38.21	56.72	39.81	60.14	54.54	54.32	43.09
OPTION 4	2467	34.70	44.44	44.40	58.63	53.57	53.96	41.85
SCHOOLWIDE PROJECTS	3864	39.26	53.26	33.83	56.93	43.35	56.15	42.98
PROJECT SUCCESS: BEST ELEMENTS	3062	29.88	63.12	43.42	59.12	67.10		
SATELLITE CENTER A	118	34.88				75.55	68.88	46.42
SATELLITE CENTER B	280	36.80				64.04	70.76	46.82
SATELLITE CENTER C	521	32.90			62.19	59.62	66.66	33.62
SATELLITE CENTER D	596	34.67			65.73	72.72	69.23	49.58
BENCHMARK	714	31.95				80.95	65.97	47.84
TOTAL	35476							
AVERAGE FOR READING SERVICES		37.08	56.95	39.92	59.56	55.33	55.48	43.04

TABLE 5: A Comparison of Mathematics Projects' Achievement in Grades 1-6 using the Percent of Success Indicator

Project	Number	Mean Pretest NCE	Grade Percent Improving NCE Scores 1	2	3	4	5	6
OPTION 4 MATHEMATICS	1602	32.40	100.00	60.25	60.37	66.84	61.71	76.26
SCHOOLWIDE PROJECTS	3826	47.46	54.25	48.53	40.25	44.75	52.47	64.64
BENCHMARK	707	31.79				69.17	69.06	81.14
PROJECT SUCCESS: BEST ELEMENTS	3049	34.76	71.87	61.09	53.97	60.65		
EMRT	5671	31.31	74.68	69.45	67.73	63.12	64.10	77.60
TOTAL	14855							
AVERAGE FOR MATHEMATICS SERVICES		36.32	65.84	58.82	56.59	59.22	61.87	74.38

5. STANDARDIZED CURRICULUM SUPPORT INDICATOR (SCS)

Since Chapter 1 is designed to supplement the general fund program, the evaluation of this activity should reflect the degree to which service is supportive of the educational program as a whole. Therefore, evaluation of Chapter 1 is in reality a part of a larger picture within the total school district evaluation.

Recently, Echternact suggested that LEA's might approach the evaluation by addressing the question: "Are Chapter 1 students up to standards over time?" (February, 1988). The central thrust of this view is not so much causal inference about the program but rather the achievement growth of the participants. "The idea behind this type of evaluation is that students must achieve at certain levels to progress through an educational program .... It matters little how much one is gaining if those gains result in achievement below that needed for grade-level performance" (Echternact, p.2).

If Chapter 1 is designed to contribute to bring students up to some minimum standard -- what should those standards be? How can we track progress in determining the degree to which our efforts are producing desirable results? Since Chapter 1's basic goal is to contribute to the student's successful completion of the District's educational program, then in Philadelphia, mastery of the elements of the Standardized Curriculum becomes the minimum standard. While evidence of enhanced school success may be inferred through acceptable promotion rates, high school completion and reduced dropout rates, the primary underlying assumption is that positive student achievement enables one to be promoted regularly and to complete high school. The balance of this section will explore an approach to monitoring system-wide progress in the regular academic program and determining the interaction and support provided by Chapter 1.

The SCS Indicator analyzes scores from the curriculum referenced items on the City-Wide Tests to determine the degree to which children are mastering the basic elements of the Philadelphia Standardized Curriculum. These assessments may be made in each subject field in grades K-8. Within this framework, the SCS indicator is computed by dividing the percent correct in Chapter 1 schools by the percent correct in non-Chapter 1 schools and subtracting the result from 1. For example, on the grade 6 Reading test (Table 6, word recognition/vocabulary development strand) -- non-Chapter 1 schools averaged 66.7% correct while Chapter 1 schools attained 55.8% correct. The result of 55.8 divided by 66.7 = 83.6%. This means that on the average, 6th grade children in Chapter 1 schools are demonstrating about eighty percent of the mastery on this standardized curriculum strand as their more advantaged peers. If one subtracts 83.6% from 100%, one could say that a 16.3% achievement gap currently exists between the groups with respect to that strand. Tables 6 and 7 contain the achievement gaps that initially existed between Chapter 1 schools and non-Chapter 1 schools relative to mastery of the elements of the Standardized Curriculum in reading and mathematics.

Let us suppose that during the subsequent testing cycle, the Chapter 1 scores of grade 6 participants increase to 62.5% correct; when divided by 66.7% = 93.7% - 100% = 6.3% gap. This example suggests that due to the

Table 6: READING-ENGLISH-LANGUAGE ARTS(RELA) ACHIEVEMENT GAP NOVEMBER 1987 CHAPTER 1 VS. NON-CHAPTER 1
Grade Level Comparisons of the Percent of Philadelphia Items Correct

Curriculum Strands	Grade 1			Grade 2			Grade 3		
	Not Served	Served	Gap	Not Served	Served	Gap	Not Served	Served	Gap
L & I Comprehension	79.5	71.4	-10.2%	70.4	58.9	-16.3%	64.4	54.4	-15.5%
Usage	62.5	55.0	-12.0%	80.0	70.0	-12.5%			
Word Recog/Vocab	78.8	67.5	-14.3%	76.3	66.3	-13.1%	78.3	67.5	-13.8%
Study Skills	63.8	56.3	-11.8%	87.5	80.0	-8.6%	69.2	59.2	-14.5%
Literature	83.3	74.4	-10.7%	55.0	43.8	-20.4%	75.0	62.5	-16.7%

Table 6: CONTINUED

Curriculum Strands	Grade 4			Grade 5			Grade 6		
	Not Served	Served	Gap	Not Served	Served	Gap	Not Served	Served	Gap
L & I Comprehension	64.3	54.3	-15.6%	67.2	57.8	-14.0%	75.0	65.0	-13.3%
Usage	72.0	64.0	-11.1%	87.5	80.0	-8.6%	82.5	72.5	-12.1%
Word Recog/Vocab	60.0	52.5	-12.5%	60.0	50.0	-16.7%	66.7	55.8	-16.3%
Study Skills	75.0	65.0	-13.3%	70.0	58.8	-16.0%	75.8	67.5	-10.9%
Literature	70.6	61.9	-12.3%	65.3	53.5	-18.1%	72.4	62.4	-13.8%

Table 7: MATHEMATICS ACHIEVEMENT GAP CHAPTER 1 VS. NON-CHAPTER 1 SCHOOLS
Grade Level Comparisons of the Percent of Curriculum Reference Items Correct

Curriculum Strands	Grade 1			Grade 2			Grade 3		
	Unserved	Served	Gap	Unserved	Served	Gap	Unserved	Served	Gap
CONCEPTS AND APPLICATIONS									
Systems of Numeration	65.0	52.5	-19.2%	87.5	82.5	-5.7%	65.0	55.0	-15.4%
Operations with Whole Nrs	75.0	63.3	-15.6%	87.5	80.0	-8.6%	64.0	54.0	-15.6%
Operations w/Fractional Nrs	67.5	57.5	-14.8%	65.0	57.5	-11.5%	65.0	60.0	-7.7%
Measurement	52.5	47.5	-9.5%	82.5	77.5	-6.1%	66.7	55.0	-17.5%
Organizing & Interpret Data	67.5	60.0	-11.1%	92.5	90.0	-2.7%	72.5	60.0	-17.2%
Geometry	75.0	70.0	-6.7%	67.5	60.0	-11.1%	55.0	47.5	-13.6%
Problem Solving	72.5	62.5	-13.8%	78.3	66.7	-14.8%	52.5	45.0	-14.3%
COMPUTATION									
Systems of Numeration									
Operations with Whole Nrs							77.1	68.6	-11.0%
Operations w/Fractional Nrs									

Table 7: CONTINUED

Curriculum Strands	Grade 4			Grade 5			Grade 6		
	Unserved	Served	Gap	Unserved	Served	Gap	Unserved	Served	Gap
CONCEPTS AND APPLICATIONS									
Systems of Numeration	83.3	76.7	-7.9%	63.3	53.3	-15.8%	78.0	72.0	-7.7%
Operations with Whole Nrs	74.0	68.0	-8.1%	85.0	77.5	-8.8%	58.0	48.0	-17.2%
Operations w/Fractional Nrs	55.0	45.0	-18.2%	36.3	30.0	-17.4%	55.0	42.5	-22.7%
Measurement	52.5	45.0	-14.3%	65.0	57.5	-11.5%	50.0	43.8	-12.4%
Organizing & Interpret Data	71.3	63.8	-10.5%	72.0	62.0	-13.9%	42.0	32.0	-23.8%
Geometry	73.3	68.3	-6.8%	56.7	46.7	-17.6%	53.8	45.0	-16.4%
Problem Solving	57.1	45.7	-20.0%	66.0	54.0	-18.2%	67.5	55.0	-18.5%
COMPUTATION									
Systems of Numeration									
Operations with Whole Nrs	80.8	74.6	-7.7%	78.3	70.0	-10.6%	67.8	60.0	-11.5%
Operations w/Fractional Nrs	71.7	66.7	-7.0%	68.0	64.0	-5.9%	64.0	58.0	-9.4%

Source: Philadelphia Citywide Testing Program Midyear 1987-1988

interaction between the general fund and Chapter 1 services, the achievement gap preventing students from progressing through an educational program is being eliminated. As the ratio between Chapter 1 and non-Chapter 1 schools approaches 1, the gap is closed. At that point, the District can examine the denominator, i.e. the percent correct for non-Chapter 1 schools and shift to a new (and hopefully higher) baseline. This is similar to the type of approach that is used for economic indicators when baseline "years" are periodically shifted to bring "purchasing power" more in line with reality. A determination of the degree to which the initial gap is closing will be made upon receipt of the citywide testing information from the January-February 1989 testing cycle.

The SCS indicator has several useful properties. First, it creates a baseline that demonstrates need across the major subject areas and their key strands. Second, it focuses attention on the mastery of the basic areas of the Standardized Curriculum. Third, it establishes a standard and provides a method of determining progress toward the attainment of the desired goal -- i.e., closing the achievement gap between Chapter 1 and non-Chapter 1 schools.

Furthermore, for districts with a criterion referenced testing program, this technique may avoid limitations commonly found in other Chapter 1 evaluations: (1) Need to attribute programmatic changes to casual inferences (2) providing services which force the least able children to work simultaneously on two separate curricula and, (3) establishing unrealistic standards which require the low performing child to demonstrate significantly more growth and close the achievement gap in an unrealistic timeframe.

SCHOOL-BASED APPLICATIONS

The indicators described in the previous section were developed to inform both school-based and district-wide discussion and decision-making. Illustrated in the Appendix are two school-based applications designed to meet the needs of the XYZ School, one of the District's Schoolwide Projects.

The first application displays multiple indicators which compare the XYZ School with the Chapter 1 City-wide average; the following picture of the XYZ School emerges: (1) percentagewise, the XYZ's pupil population changes more during the year than Chapter 1 as a whole (2) a slightly smaller percentage of XYZ's children are behind in grade level placement (3) the reading and mathematics exit and return rates are similar to the City-wide Chapter 1 average (4) the Percent of Success exceeds the Chapter 1 average for reading but is lower than average for mathematics, and (5) the achievement gap for both reading and mathematics exceeds the average achievement gap for Chapter 1 as a whole.

The second school-based application examines the grade 5 reading achievement gap for each major strand of the Reading Language Arts Standardized Curriculum. The XYZ School can chart its progress in comparison to the Chapter 1 and the non-Chapter 1 schools across the city.

FUTURE DEVELOPMENT AND CONSIDERATIONS

A series of valid indicators in place over time may be of tremendous value to policy-makers and school based decision-makers. This could allow them to anticipate changes in outcomes and to focus corrective action when an indicator moves into an unacceptable range. The continuous refinement of this might become the basis for guiding an action system which could lead to consistent programmatic improvement.

The use of indicators is not without danger as David (1988) points out,... "indicators could cause school people and parents to focus on the wrong things (misleading messages). Second, indicators may not influence local policy making to justify the resources expended on them..." The selection of the initial Chapter 1 indicators cited in this paper appears to have the potential for addressing both of these concerns.

Three of the indicators (Standardized Curriculum Support Indicator, Percent of Success Indicator and Exit/Return rate Indicators) send a very clear message with respect to pupil outcomes: The primary goal of all of the Chapter 1 services should be to foster student success in the regular educational program! Therefore, mastery of the local Standardized Curriculum, success in the Chapter 1 project and exit from the Chapter 1 program are the desired student outcomes that are consistent with the learning goals of the School District of Philadelphia. Futhermore, by using multiple indicators of success, The District is taking steps that will prevent indicators from becoming ends in themselves. While it is always possible to corrupt any indicator by affecting the numerical value rather than the underlying phenomena, involvement of teachers and principals in the next stages of selection, interpretation and refinement may facilitate an environment which will be characterized by honest, open dialogue and will select measures over which principals and teachers can exhurt influence. Much can be accomplished if the District is willing to use indicators for guiding corrective feed-back and allocating resources rather than associating rewards and punishment with extreme values (Cooley, 1983).

The remaining indicators (Pupil-Stability, Age-Grade Appropriate) are currently viewed as describing the arena in which learning takes place rather than actual outcomes. Further studies will be required to determine if they have predictive value and thus could serve as leading or coincident indicators.

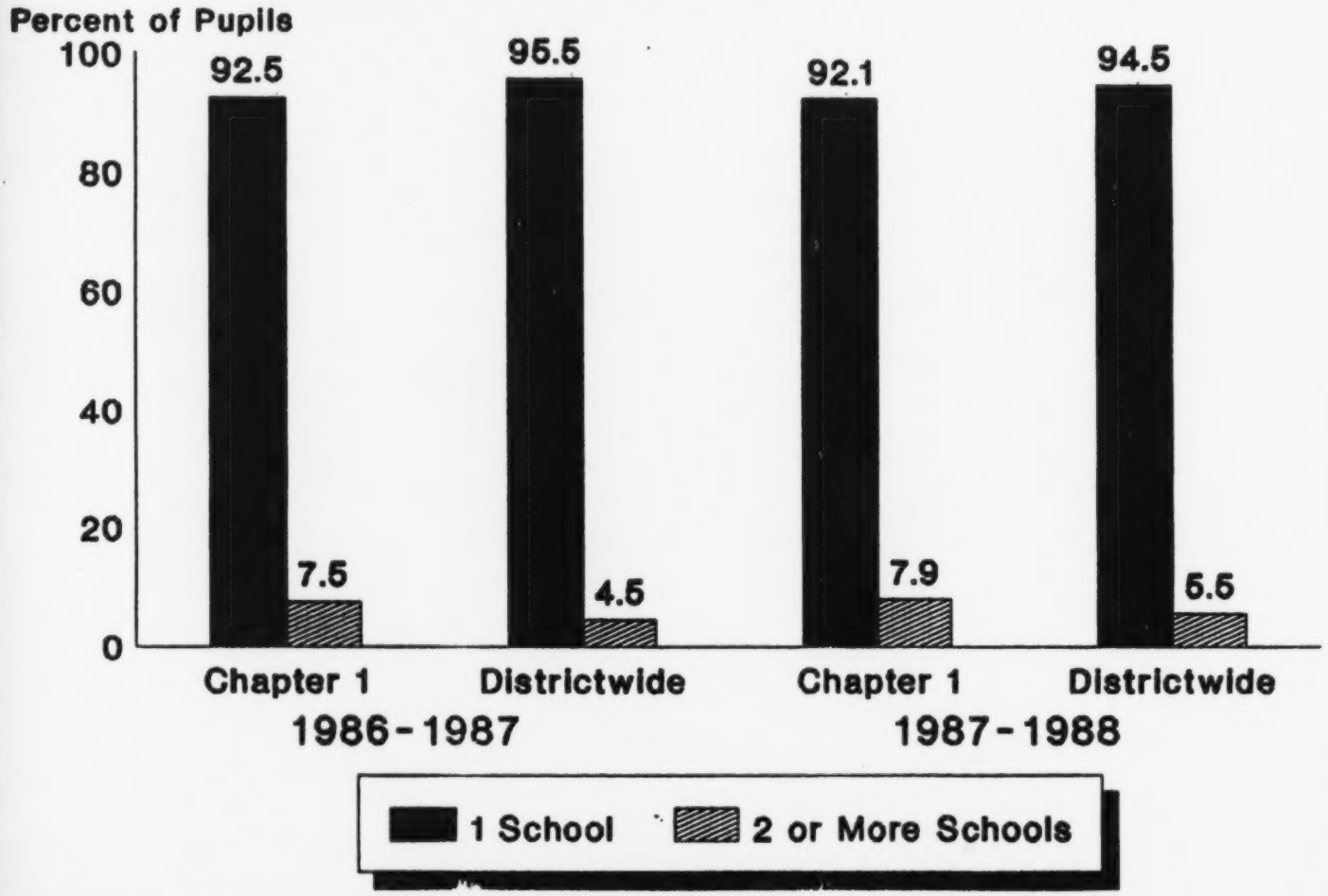
The second issue requires that the indicators ought to influence planning and policy making. For indicators to be of value, they must generate information which is useful in a decision context. In addition there must be provisions for getting this information into the working knowledge of the participants in the decision-making environment (Kennedy, 1982). The key is that indicators ought to describe aspects of Chapter 1 that people care about. Furthermore, there must be reasonable follow-up and corrective action in order to insure program improvement. The technique suggested by Cooley (1983), known as "monitoring and tailoring," appears to offer considerable promise. "It involves developing and monitoring a variety of performance indicators. Then,

whenever an indicator moves into an unacceptable range, an attempt is made to determine just where that condition is most severe. Focused corrective action is then taken which (is) called tailoring practice...monitoring and tailoring resembles the cybernetic model used in controlling physical systems (as in the thermostat)." Emerging from this type of examination are three key ingredients. First, "district level aggregates are important for a dialogue about what aspects are in greatest need of improvement and, over time, for indicating whether progress is being made." Second, an examination of the distribution within a performance indicator on the school or classroom level" provides a basis for guiding the action system that is supposed to improve the performance." Third, "connecting an action system or a deployable resource to correct the most serious cases found within the district. This is not a call for new staff to perform this function. What the information system does is show how existing personnel might focus their energies" (Cooley, 1983).

Depending upon how they are used, indicators may be a blessing or a curse. If the data is focused upon program improvement and if the risks associated with undesirable numeric values are minimized, then perhaps a more rational process will guide educational policy making and resource allocations; one which will allow a closing of the gap between where we are and where we ought to be.

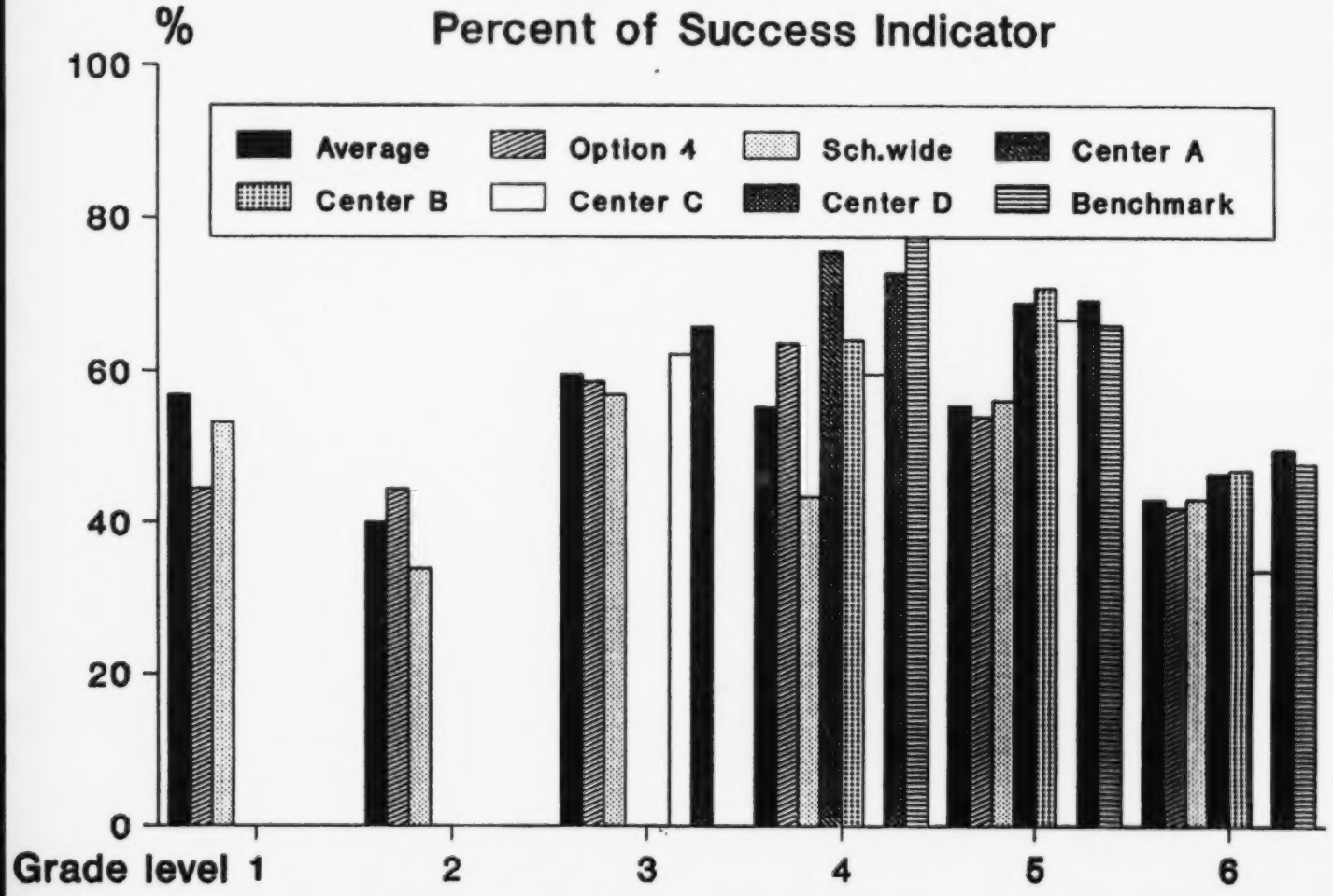
APPENDIX

Pupil Stability Indicator*



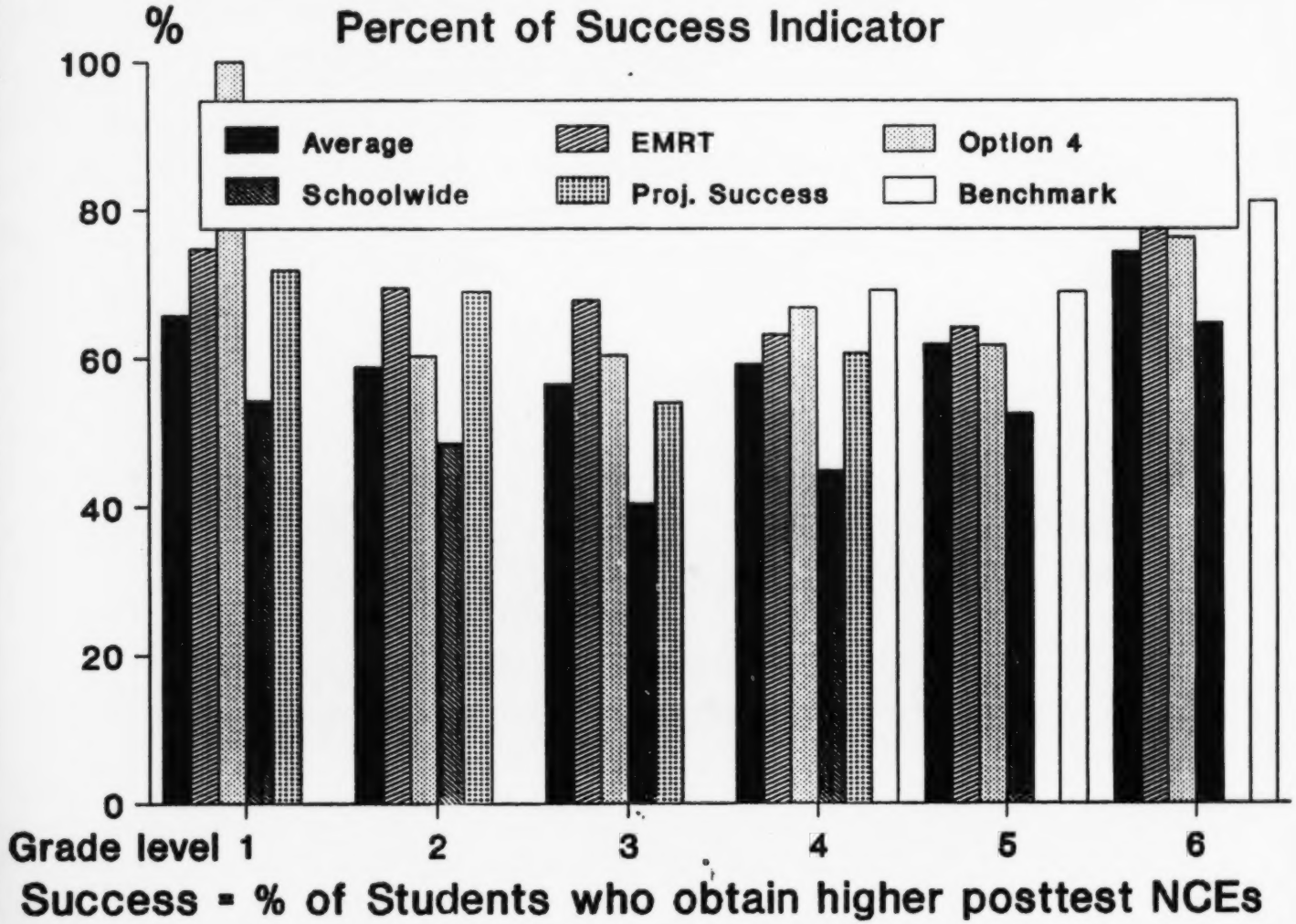
* Stability = Percent of pupils who do not change schools

Chapter 1 Reading Achievement Grades 1 - 6

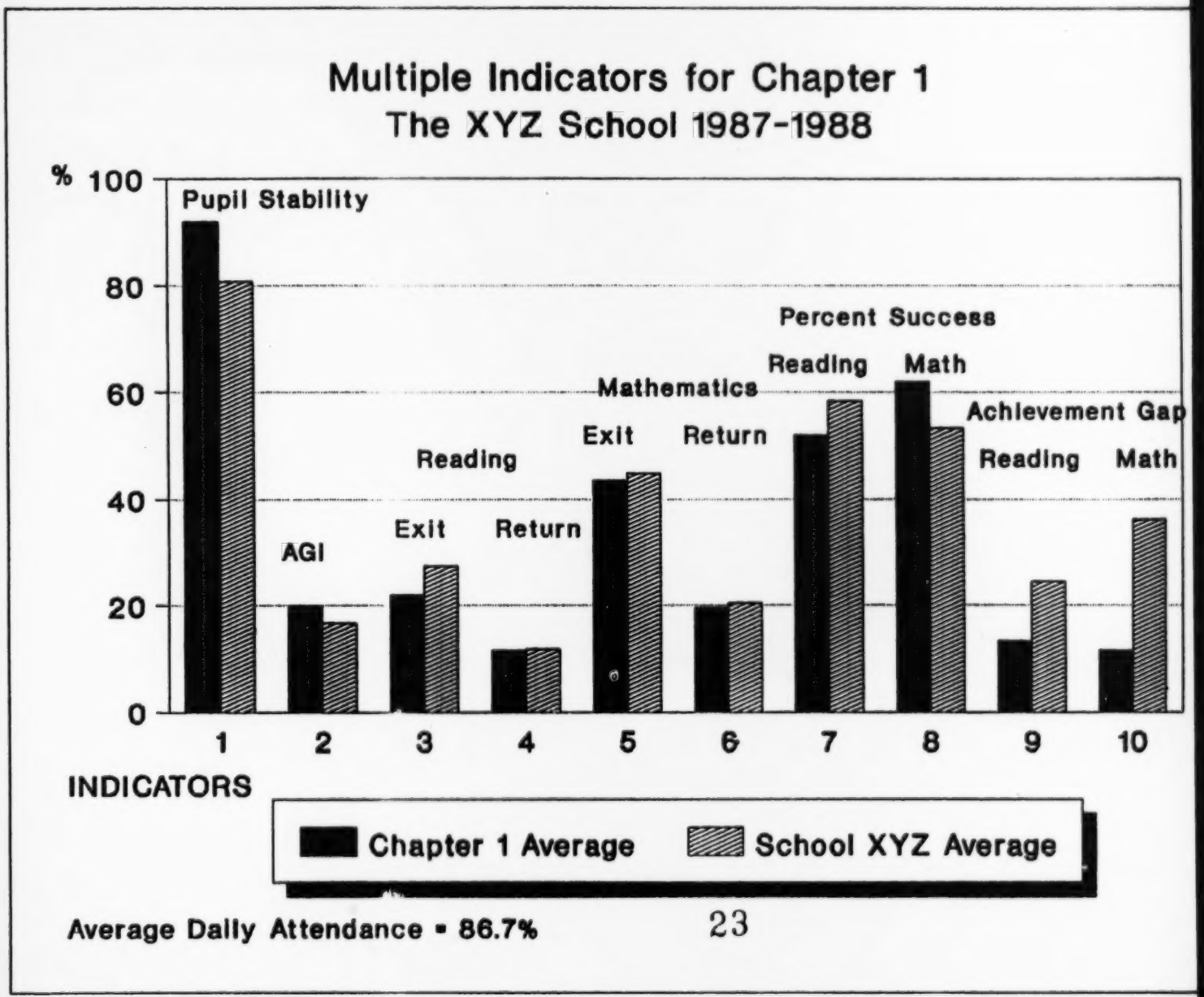


Success = % of Students who obtain higher posttest NCEs

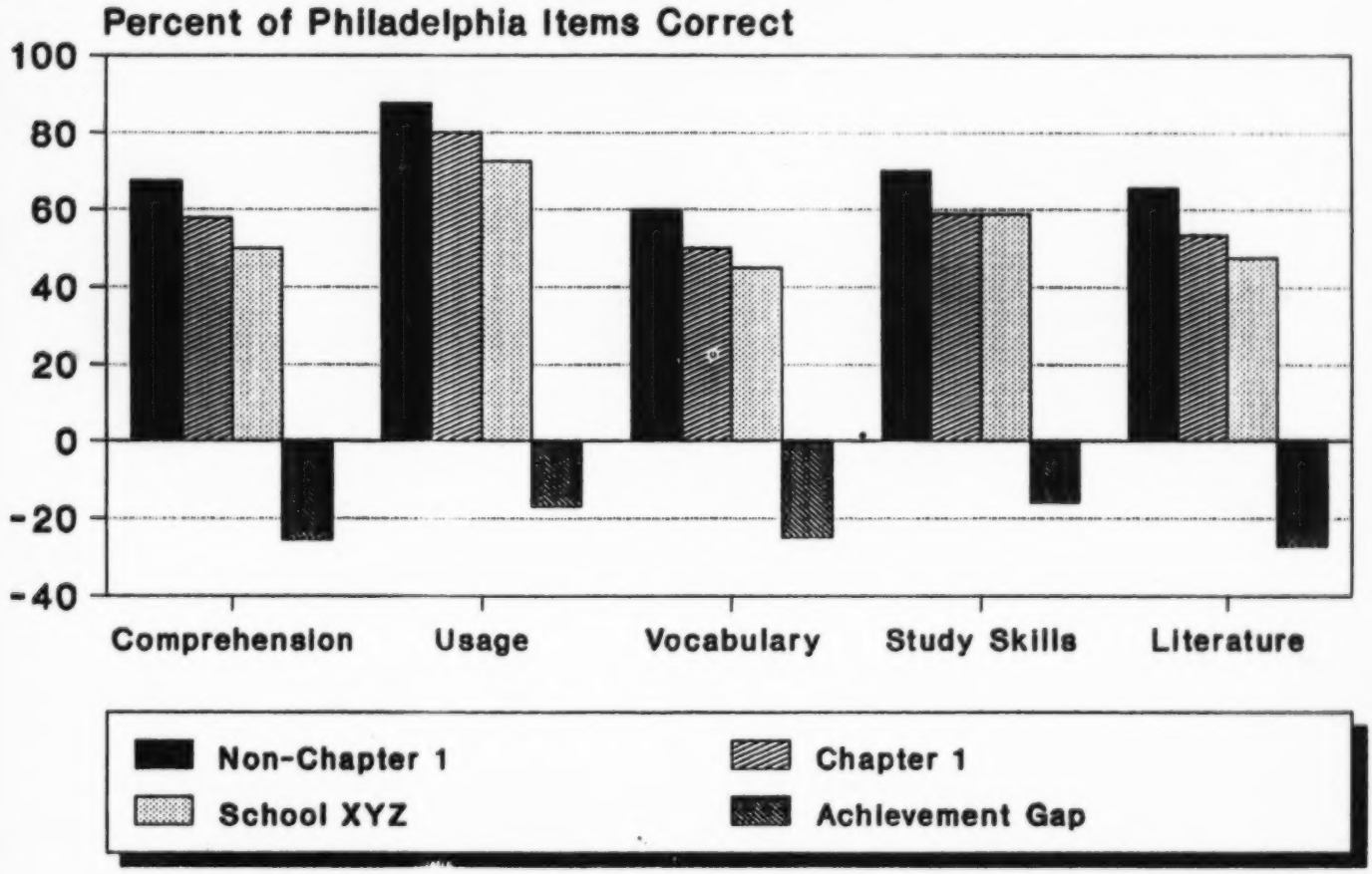
Chapter 1 Mathematics Achievement Grades 1 - 6



Success = % of Students who obtain higher posttest NCEs


Multiple Indicators for Chapter 1
The XYZ School 1987-1988
% 100
80
60
40
20
0
Pupil Stability
AGI
Reading
Exit
Return
Mathematics
Exit
Return
Percent Success
Reading
Math
Achievement Gap
Reading
Math
1
2
3
4
5
6
7
8
9
10
INDICATORS
Chapter 1 Average
School XYZ Average
Average Daily Attendance = 86.7%

The XYZ School 1987-1988
Grade 5 Reading Achievement Gap



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